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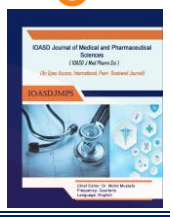

A Parotid Mass Mimicking a Benign Tumor: Acinic Cell Carcinoma in an Adolescent

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ABSTRACT

Background: Acinic cell carcinoma (AciCC) is an uncommon salivary gland malignancy and is exceptional in adolescents. Because it typically grows slowly and often remains painless, it may closely mimic a benign parotid tumor. ***Case:*** A 16-year-old girl presented with a painless right infra-auricular swelling present for 4 years. MRI (T1-weighted and fat-suppressed T2 sequences) revealed a well-circumscribed lesion in the tail of the right parotid gland (17 × 16 × 21 mm), hypointense on T1 and hyperintense on fat-suppressed T2, with preserved surrounding fat planes and no cervical lymphadenopathy. She underwent a superficial (lateral) parotidectomy (exofacial approach) with facial nerve preservation. Histopathology confirmed low-grade AciCC with negative margins and no lymphovascular or perineural invasion. A transient postoperative House–Brackmann grade III facial palsy resolved within two weeks. At 18 months, there was no evidence of recurrence. ***Conclusion:*** In adolescents, a clinically benign-appearing parotid mass may still represent a low-grade malignancy. MRI helps with surgical planning but remains non-specific; definitive diagnosis relies on histopathology, and long-term follow-up is essential.

Keywords: Acinic cell carcinoma; Parotid gland; Adolescent; MRI; Parotidectomy; Case report.

Case Report

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INTRODUCTION

Acinic cell carcinoma (AciCC) is a malignant epithelial tumor showing serous acinar differentiation and occurs most commonly in the parotid gland. It represents a small proportion of parotid tumors but a meaningful subset of salivary gland malignancies, and is classically considered low grade in most cases (while high-grade transformation may occur) [1–5].

AciCC predominantly affects adults, with a peak incidence in the fifth to sixth decades and a female predominance [1–3,5]. Pediatric and adolescent cases are rare, which contributes to diagnostic delay when a parotid mass appears clinically reassuring [6,10–12].

Clinical and radiologic presentations can overlap with benign tumors such as pleomorphic adenoma. MRI is useful for lesion mapping (superficial vs deep lobe), for assessing relationships to adjacent structures, and for evaluating cervical nodes; however, no imaging pattern is pathognomonic for AciCC. Definitive diagnosis relies on histopathology.

We report an adolescent case of parotid AciCC with a deceptively benign clinical course and non-specific MRI features, and we discuss key points for diagnosis, treatment, and follow-up.

CASE PRESENTATION

Timeline (key milestones)

- ~4 years before presentation: onset of painless right infra-auricular swelling with slow growth.
- At presentation (age 16): clinical exam—mobile, well-circumscribed parotid tail mass; no lymphadenopathy.
- Preoperative work-up: MRI—well-circumscribed parotid tail lesion (T1 hypointense, fat-suppressed T2 hyperintense); no cervical nodes.
- Surgery: superficial (lateral) parotidectomy (exofacial approach) with facial nerve preservation.
- Postoperative day 0–14: transient House–Brackmann III facial weakness → complete recovery within 2 weeks.
- Follow-up: 18 months—no clinical recurrence.

A 16-year-old girl with no significant medical history presented with a right parotid-region swelling present for 4 years. The mass had gradually increased in size, without pain, inflammatory episodes, or constitutional symptoms.

CLINICAL EXAMINATION

Examination revealed a well-circumscribed right parotid swelling measuring approximately 2 cm, located in the tail of the parotid gland within the superficial lobe, with no apparent extension toward the deep lobe.

On palpation, the mass was firm, well delimited, mobile over both superficial and deep planes, non-pulsatile, non-fluctuant, and painless. The overlying skin was normal, without inflammatory change or cutaneous adherence (Figure 1).

No bruit was heard on auscultation. Stensen's duct was patent, with no abnormal secretion upon gland compression (clear, homogeneous saliva).

Facial nerve function was strictly normal (House–Brackmann grade I), with no asymmetry or segmental weakness. Neurologic examination was normal, with no facial hypoesthesia and no associated otologic symptoms (otalgia, tinnitus, hearing loss).

Neck examination revealed no palpable lymphadenopathy. The remainder of the ENT examination was unremarkable.

Figure 1. Right infra-auricular parotid swelling (arrow), well-circumscribed and painless, without overlying skin changes.

DIAGNOSTIC WORK-UP

Parotid MRI showed an ovoid, well-circumscribed intraparotid lesion in the tail of the right parotid gland, measuring 17 × 16 × 21 mm. It appeared hyperintense on fat-suppressed T2 and hypointense on T1 (Figure 2A–B). The surrounding fat planes were preserved, without signs of infiltration, and no cervical lymphadenopathy was detected (Figure 2). Diffusion-weighted and post-contrast sequences were not available for review in our imaging archive.

In the context of a slowly enlarging, painless parotid-tail mass in an adolescent, these non-contrast MRI features remained non-specific. The differential diagnoses included pleomorphic adenoma, low-grade carcinoma (including AciCC), and other rare pediatric salivary tumors. Because of the long duration, progressive growth, and persistent diagnostic uncertainty, surgical excision was favored for definitive diagnosis and treatment.

Fine-needle aspiration (FNA), which is commonly recommended for preoperative risk stratification of parotid masses (including through the Milan System), was not performed. After discussion of the expected benefits and limitations, the family declined the procedure. Given the well-circumscribed nature of the lesion and the absence of clinical aggressiveness, surgical excision was selected for both diagnostic and therapeutic purposes [7,8].

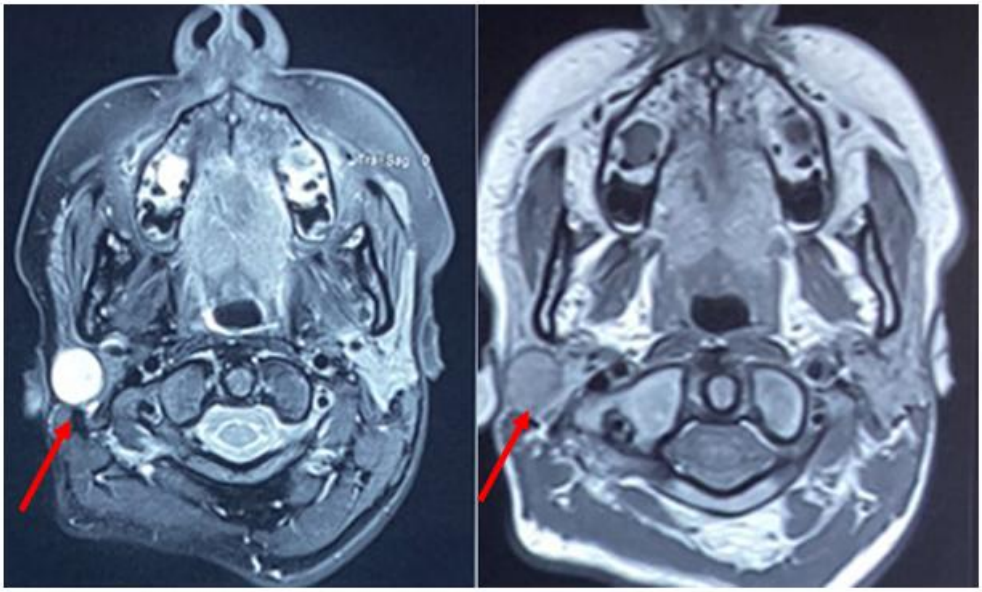

Figure 2. Parotid MRI (axial images). (A) Fat-suppressed T2: well-defined ovoid hyperintense lesion (arrow). (B) T1-weighted sequence: hypointense lesion (arrow) in the superficial lobe of the parotid gland. No cervical lymphadenopathy was detected on the available sequences. Therapeutic intervention

The patient underwent a superficial (lateral) parotidectomy (exofacial approach) with identification and preservation of the facial nerve. Frozen section suggested an oncocytic-appearing neoplastic process, requiring definitive assessment on the paraffin-embedded specimen. Frozen section in salivary gland tumors has known limitations and was used here as an intraoperative orientation; definitive typing and grading relied on the paraffin-embedded specimen.

Postoperative course and follow-up: The immediate postoperative period was marked by right peripheral facial palsy, House–Brackmann grade III, considered most consistent with transient neuropraxia, likely related to intraoperative manipulation/traction. Corticosteroids and ocular protection (vitamin A ointment and nocturnal occlusive dressing) were initiated, with complete recovery within two weeks. At 18 months, follow-up was favorable with no clinical evidence of recurrence. Long-term surveillance remains indicated because recurrence may be delayed.

Figure 3. Gross specimen showing a well-circumscribed, encapsulated nodular mass (excised parotid tumor). Pathology

Gross examination of the parotidectomy specimen (3 × 2.2 × 1.5 cm) revealed, on cut surface, an encapsulated nodular lesion measuring 2 × 2 × 1 cm, fleshy and whitish in appearance, entirely submitted in serial sections. Microscopically, the parotid gland contained a well-circumscribed epithelial tumor bounded by a thick fibrous capsule. The tumor was composed of large polygonal cells with finely granular basophilic cytoplasm, PAS–diastase positive, sometimes clear, with round to ovoid monomorphic nuclei, often eccentrically located, and rare mitoses. The cells were arranged in acini, nests, and microcystic structures, within a delicate stroma infiltrated by lymphocytes. No lymphovascular emboli or perineural invasion were identified. There was focal capsular involvement without extraparotid extension. Adjacent salivary parenchyma and fibromuscular connective tissue were free of tumor infiltration, and resection margins were negative (the pathology report did not provide millimetric margin-clearance distances), consistent with low-grade AciCC [2,3].

DISCUSSION

AciCC is most often located in the parotid gland and is generally low grade. In children and adolescents, its rarity and slow growth make it easy to misclassify as benign, especially when facial nerve function is preserved and there are no inflammatory signs [6,10–12]. This case illustrates that a long-standing parotid mass in a young patient still warrants a complete ENT assessment and malignancy should remain in the differential diagnosis.

MRI is primarily useful for anatomical mapping and preoperative planning (superficial vs deep lobe, relationship to adjacent structures) and for assessing cervical nodes. In our case, only non-contrast T1 and fat-suppressed T2 sequences were available for review; diffusion-weighted and contrast-enhanced sequences could not be assessed, which limits radiologic characterization and reinforces the need for histopathologic confirmation.

FNA is recommended in most contemporary pathways for parotid masses, both to improve preoperative counseling and to guide the extent of surgery (including the use of standardized reporting such as the Milan System) [7,8]. In our patient, FNA was declined after discussion; surgical excision therefore served both diagnostic and therapeutic purposes.

Histopathologic confirmation remains decisive. The architectural and cytologic diversity of AciCC may mimic other oncocytic or clear-cell lesions, which explains the non-specific frozen-section impression in our case. When available, immunohistochemistry and/or molecular tests (e.g., NR4A3 alterations) can support the diagnosis in challenging cases [2,3,13].

Complete resection with facial nerve preservation is the cornerstone of treatment. Adjuvant radiotherapy is generally reserved for high-risk situations (positive margins, high-grade transformation, perineural/lymphovascular invasion, nodal disease) [7]. Pediatric series suggest that surgery alone is effective in low-risk cases with negative margins and no adverse features, as in our patient [9]. Follow-up should be long-term because late recurrence and metastasis have been reported in AciCC, and pediatric guidelines also advocate prolonged surveillance [9,14].

Given the absence of clinical and radiologic nodal disease, an elective neck dissection was not indicated in this low-risk setting [7].

Limitations of this report include its single-case nature, the absence of preoperative cytology, incomplete imaging review (diffusion-weighted and post-contrast sequences were unavailable), and the absence of reported millimetric margin-clearance distances. Nonetheless, it highlights a practical diagnostic pitfall: a clinically benign parotid mass in an adolescent may conceal a low-grade malignancy.

CONCLUSION

This case highlights that a long-standing parotid mass considered benign in an adolescent may, albeit rarely, reveal acinic cell carcinoma. MRI is helpful for preoperative assessment but remains non-specific; histopathology is required for definitive diagnosis.

Complete surgical excision with facial nerve preservation remains the reference treatment. In the absence of adverse histoprognostic factors, surveillance is appropriate, but it should be prolonged given the potential for late recurrence.

DECLARATIONS

Consent: Obtained from the patient and her parents/legal guardians for anonymized publication of clinical data, clinical photographs, and radiologic images.

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Conflicts of interest: None declared.

Data availability: Data are available from the authors upon reasonable request (subject to journal policy).

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